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(72) Inventor: Saito, Tomoki
Minato-ku, Tokyo (JP)

(74) Representative:
Patentanwälte Wenzel & Kalkoff
Grubessallee 26
22143 Hamburg (DE)

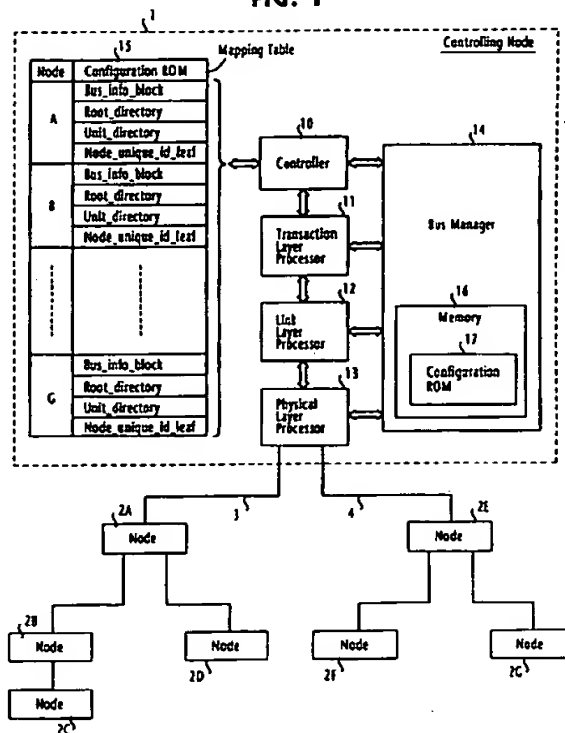
(30) Priority: 20.01.1998 JP 2160198

(71) Applicant: NEC CORPORATION
Tokyo (JP)

(54) IEEE 1394 Serial bus system using a mapping table for identifying nodes having required capabilities to establish isochronous connections

(57) In an IEEE-1394 serial bus system, a controlling node reads information from the configuration ROM of each of other nodes attached to the bus and establishes in a mapping table a correspondence between the identifier of each node and the read information. The controlling node identifies particular nodes having required capabilities according to the information stored in the mapping table and requests an isochronous resource manager to obtain information necessary for transmission of isochronous data. The obtained information is then set into plug control registers of the identified nodes to establish a connection between the identified nodes.

FIG. 1



device having required capabilities according to information stored in said mapping table, requesting an isochronous resource manager to obtain information necessary for transmission of isochronous data, and setting the obtained information into said identified device to establish a connection which supports said transmission.

2. An IEEE-1394 serial bus system in which a plurality of nodes are attached to the serial bus, each of said nodes including a configuration ROM and identified by a node identifier, at least one of said nodes comprising:

a mapping table; and
control circuitry for reading information from the configuration ROM of each of other nodes and mapping the identifier of each other node to the read information in said mapping table, identifying a node having required node capabilities according to information stored in said mapping table, requesting an isochronous resource manager to obtain information necessary for transmission of isochronous data, and setting the obtained information into said identified node to establish a connection which supports said transmission.

3. A method for establishing a connection between ones of a plurality nodes attached to an IEEE-1394 serial bus, each of said nodes including a configuration ROM and identified by a node identifier, comprising the steps of:

a) reading information from the configuration ROM of each of said nodes and mapping the identifier of the node to the read information in a mapping table;
b) identifying a node having required node capabilities according to information stored in said mapping table;
c) requesting an isochronous resource manager to obtain information necessary for transmission of isochronous data; and
d) establishing a connection to said identified node according to the obtained information.

4. The method of claim 3, wherein the step (a) comprises the steps of:

reading a data quadlet from the configuration ROM of each node; and
reading a data block from a location of the configuration ROM of the node which is specified by said data quadlet and mapping the data block to the node identifier of the node in said mapping table.

5. The method of claim 3, wherein the step (a) comprises the steps of:

transmitting a read data quadlet (RDQ) unicast request packet to the serial bus indicating a storage location of a data quadlet and receiving a (RDQ) response packet from each of said nodes indicating the data length of a data block following said data quadlet; and
transmitting a read data block (RDB) unicast request packet to the serial bus indicating said data length and a storage location of said data block and receiving a RDB response packet from each node so that said data block is obtained from the configuration ROM of the node and mapping the obtained data block to the node identifier of the node in said mapping table.

6. The method of claim 3, wherein said identified node includes a plug control register, wherein step (b) comprises:

reading data from the mapping cable to identify ones of said nodes having required node capabilities;
requesting an isochronous resource manager to obtain information necessary for transmission of isochronous data;
setting the obtained information into the plug control register of said identified node; and
establishing a connection according to the information set in said plug control register.

FIG. 1

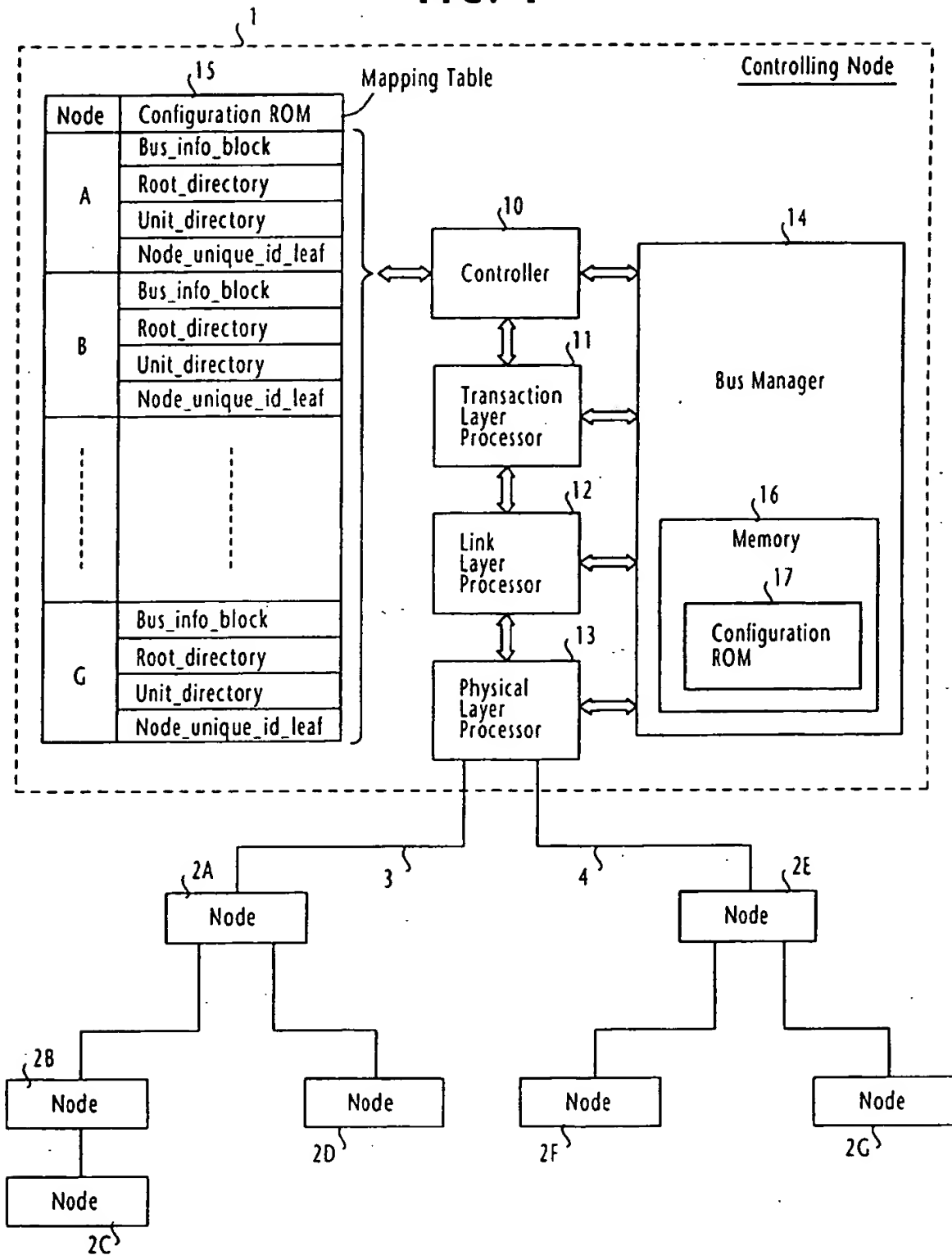


FIG. 2

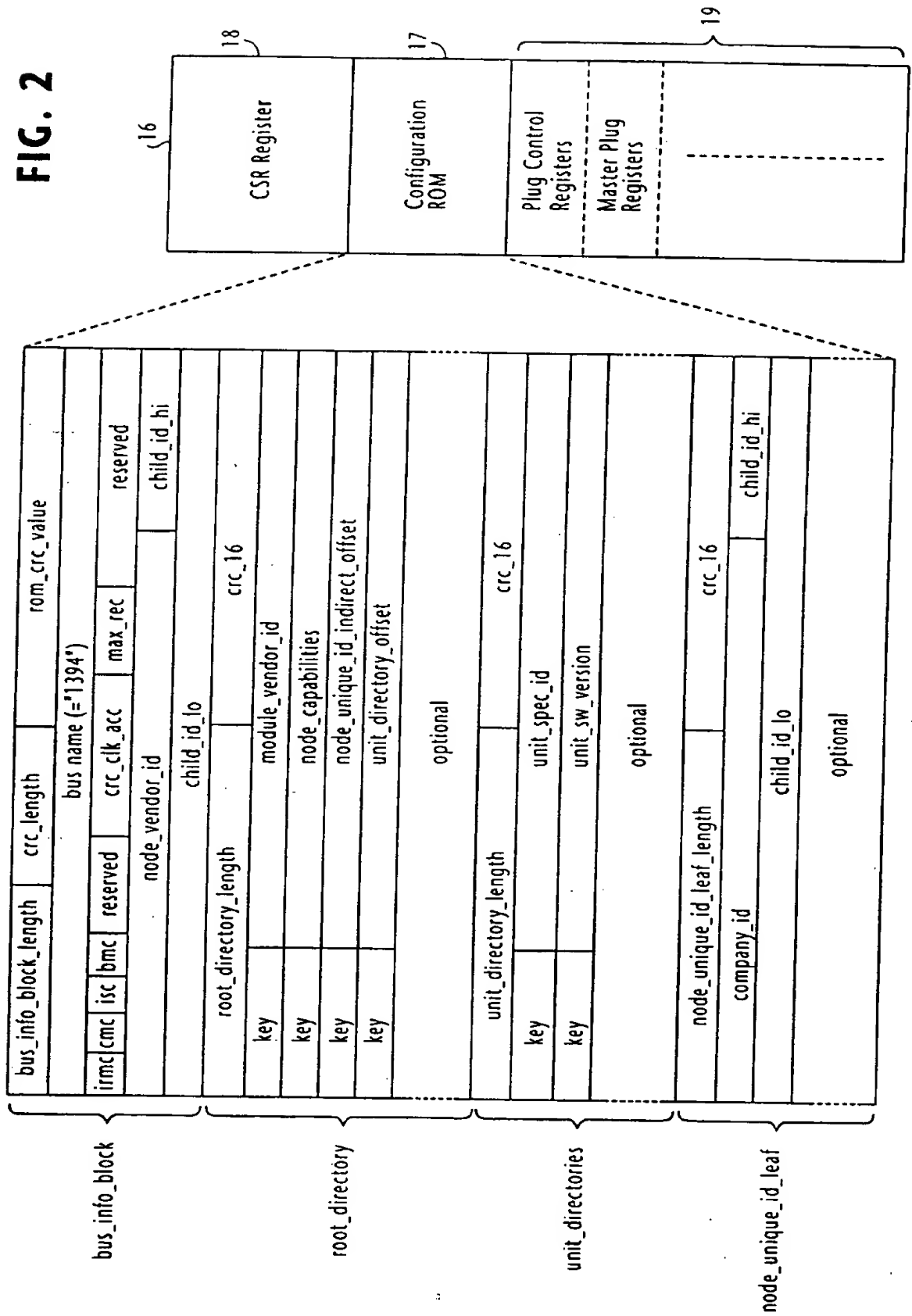


FIG. 3

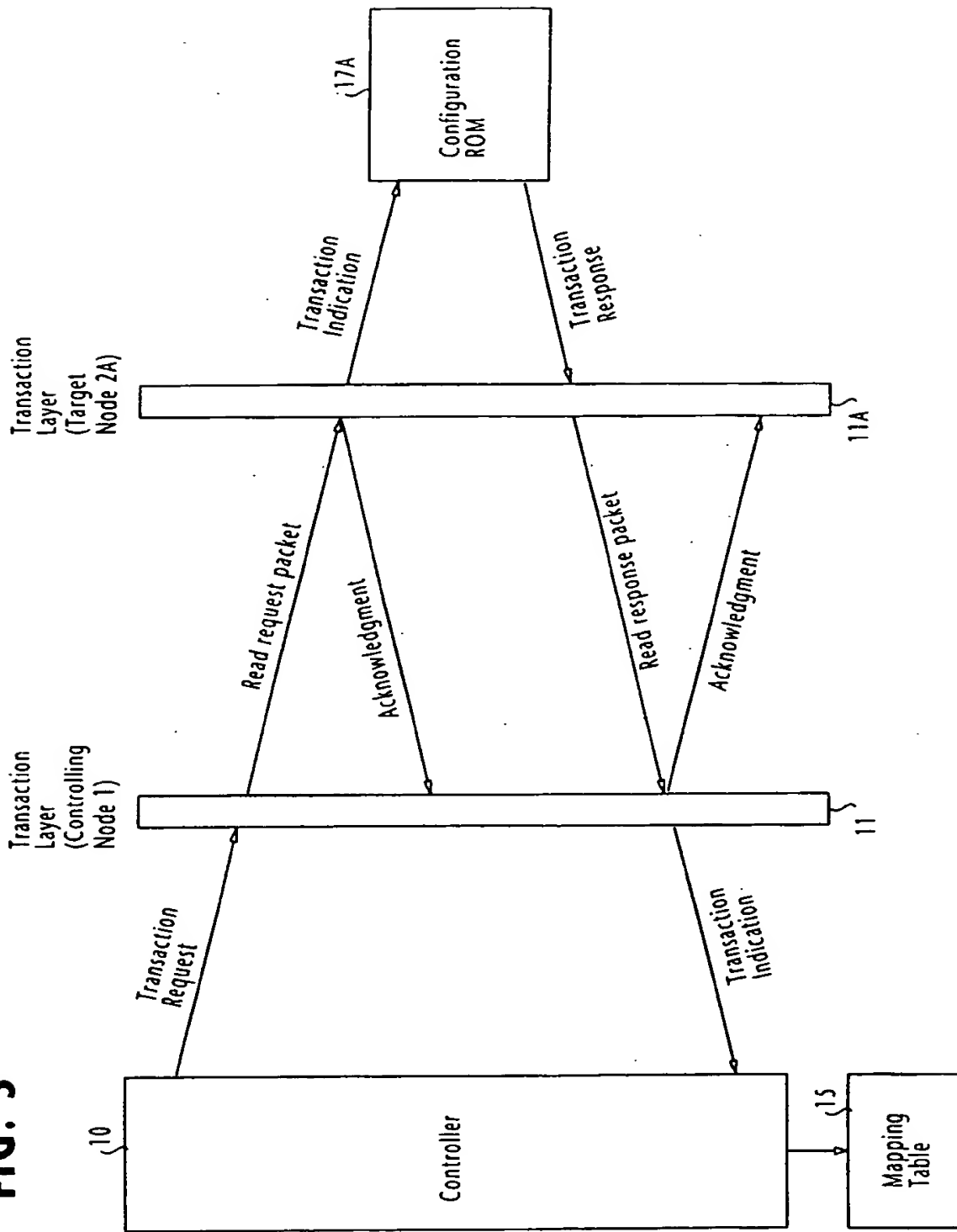


FIG. 4A

BUS_INFO_BLOCKS

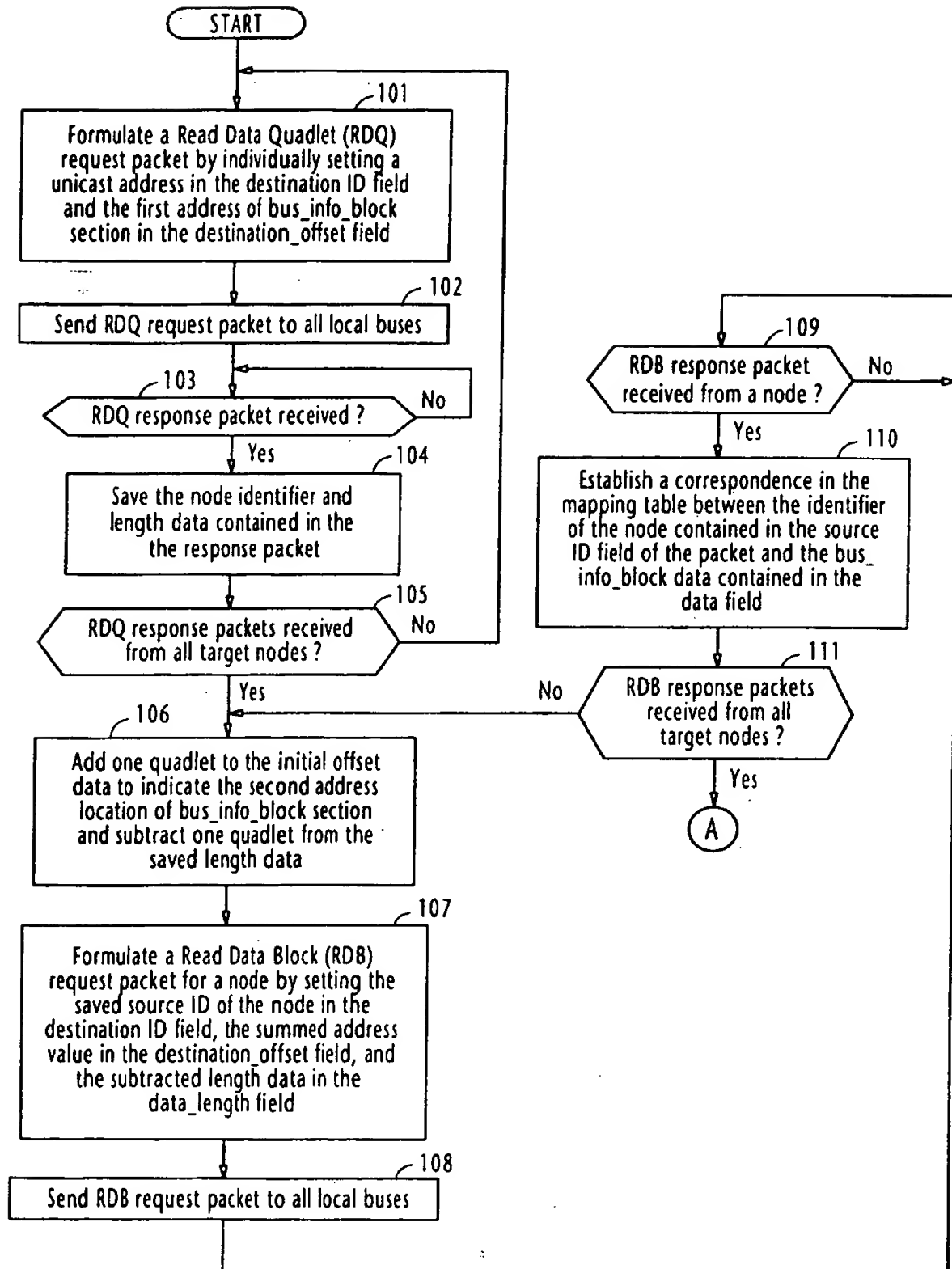


FIG. 4B

ROOT_DIRECTORIES

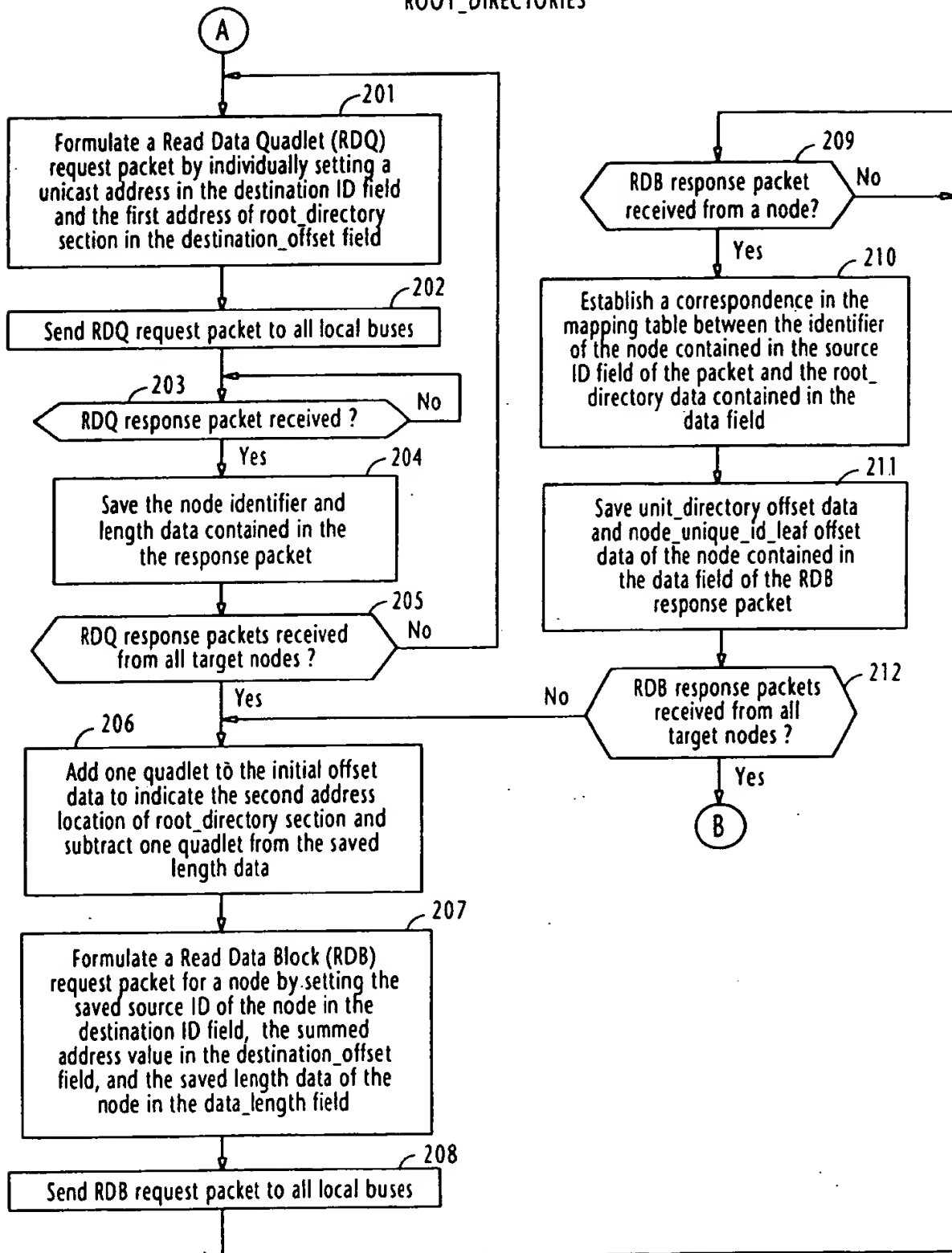


FIG. 4C

UNIT_DIRECTORIES

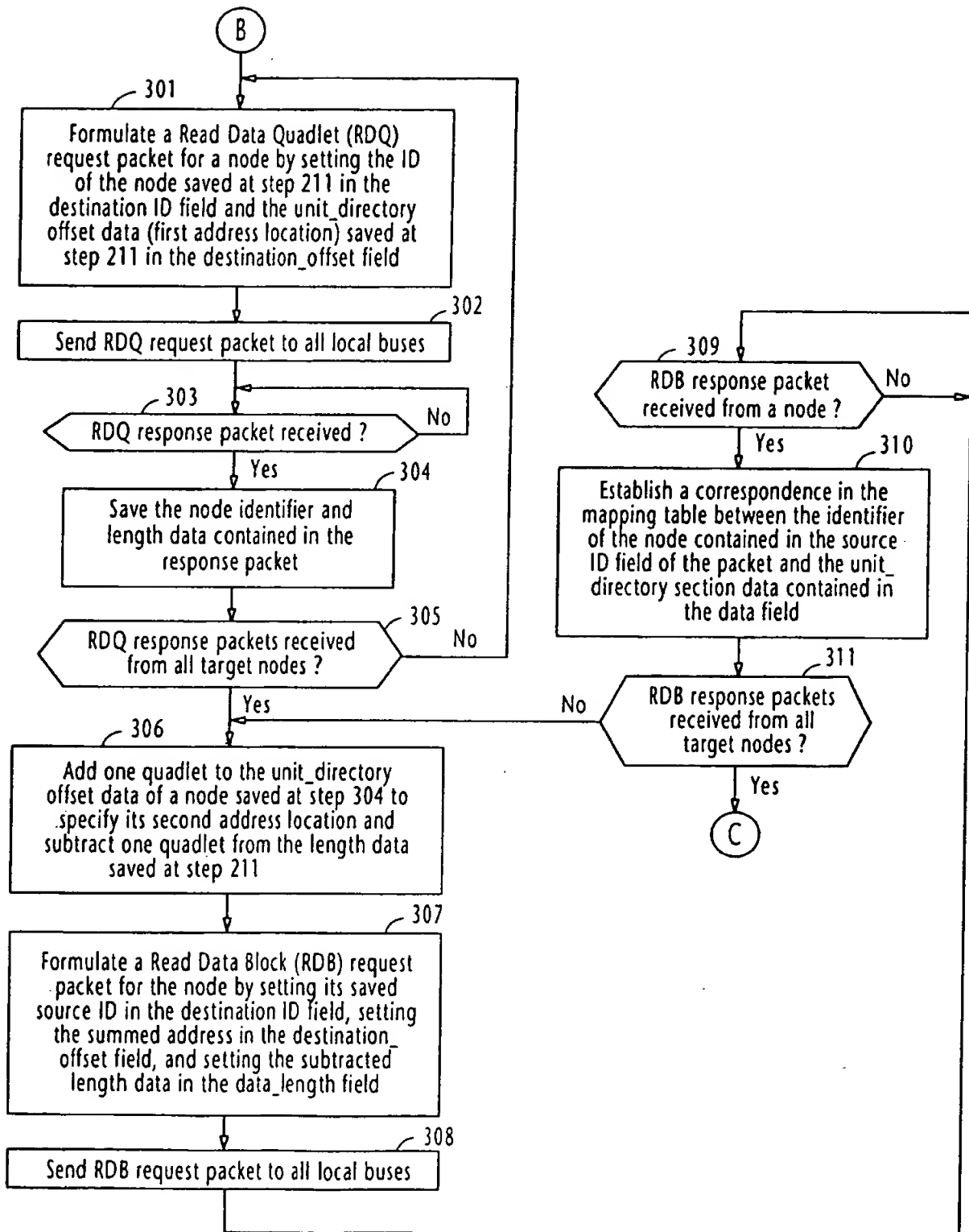


FIG. 4D

NODE_UNIQUE_ID_LEAVES

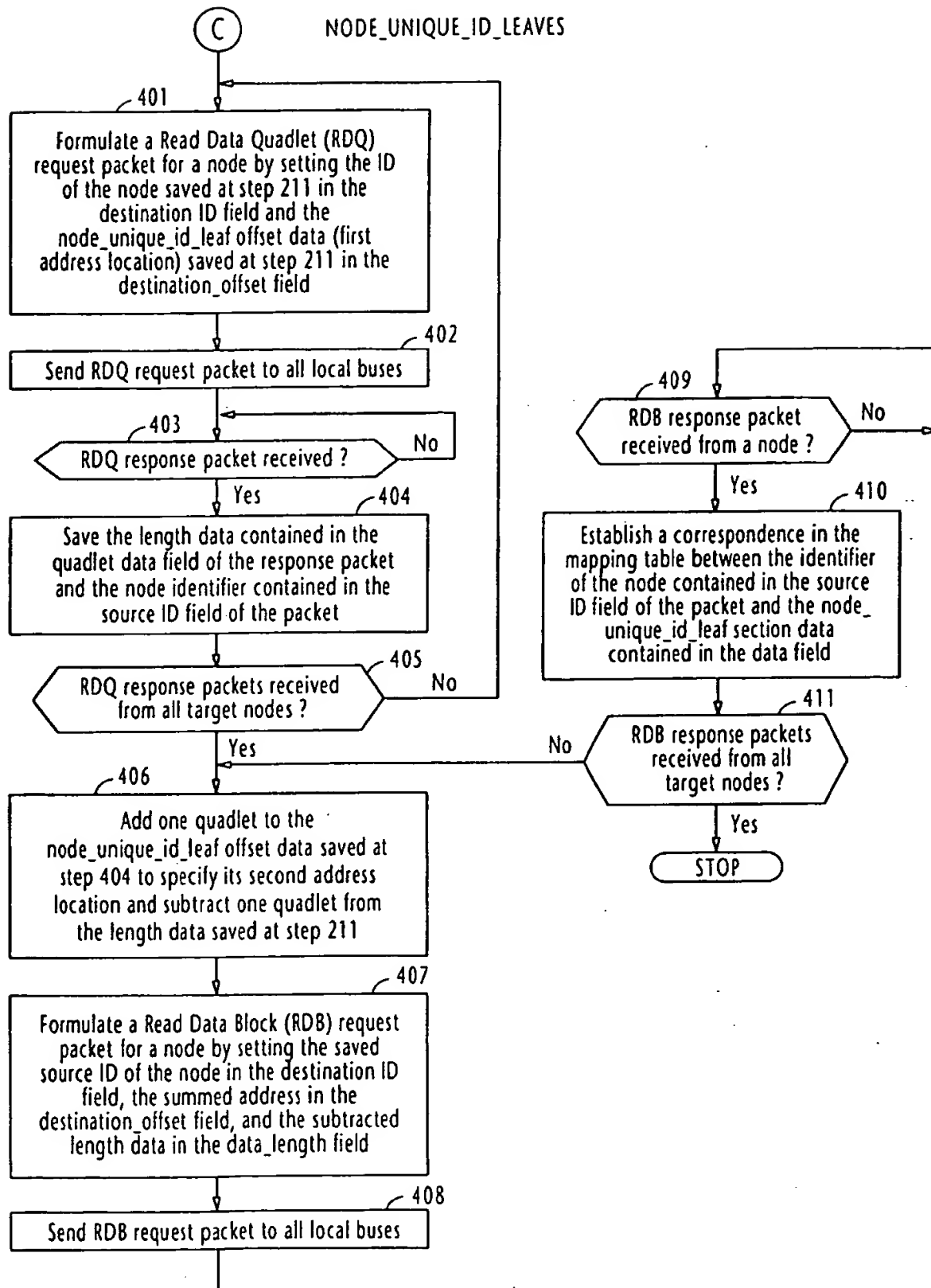
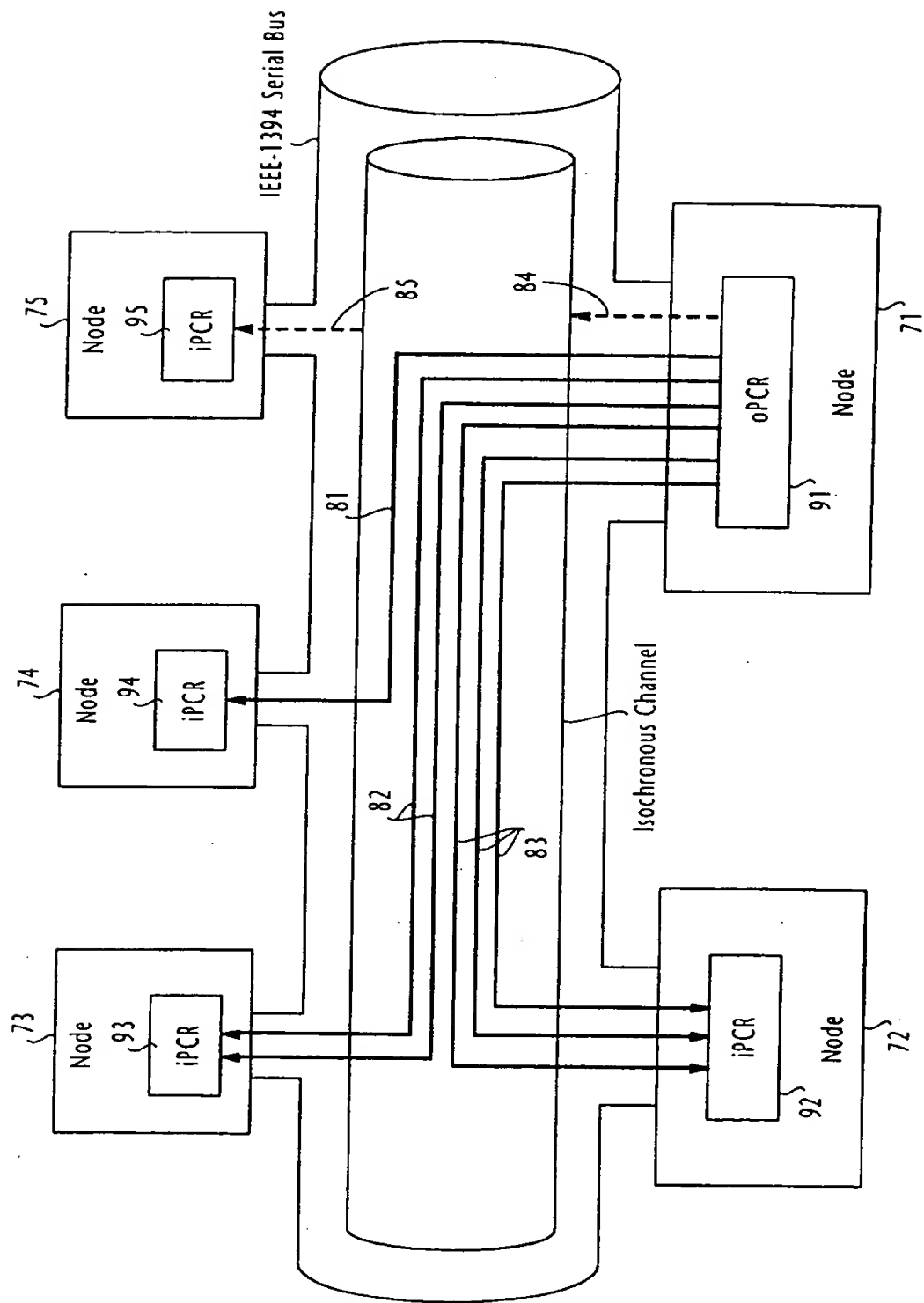


FIG. 8





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EUROPEAN SEARCH REPORT

Application Number
EP 99 25 0019

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D.Y	IEEE STANDARDS BOARD: "IEEE Standard for a High Performance Serial Bus" 1996, IEEE COMPUTER SOCIETY, PISCATAWAY, US XP002102520 * page 199 * * page 203, paragraph 8.3.1.3 * * page 204, paragraph 8.3.1.5 - paragraph 8.3.1.6 * * page 221, paragraph 8.3.2.5 - page 223 * * page 236, paragraph 8.4.6 - paragraph 8.4.6.1 * * page 239, paragraph 8.5.2; figure 8.27 * ---	1-6	H04L12/24
Y	US 5 504 757 A (COOK ET AL) 2 April 1996 * column 5, line 35 - column 6, line 16 * * column 9, line 1 - column 10, line 13 * ---	1-6	
A	US 5 317 693 A (CUENOD ET AL) 31 May 1994 * column 9, line 20 - column 10, line 18; figures 1,2 * -----	1-6	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H04L G06F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 May 1999	Examiner Gill, S
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons S : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 82 (Pct-Cl.6)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 25 0019

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The members are as contained in the European Patent Office EDP file on
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11-05-1999

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5504757	A	02-04-1996	NONE	
US 5317693	A	31-05-1994	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82